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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/826,712	04/05/2001	Johann Engelhardt	21295/100	3955

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EXAMINER

NGUYEN, THONG Q

ART UNIT	PAPER NUMBER
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2872

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DATE MAILED: 01/24/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Applicant No.

09/826,712

Applicant(s)

ENGELHARDT ET AL.

Examiner

Thong Q. Nguyen

Art Unit

2872

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 24 October 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-4, 8-10 and 16-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4, 8-10 and 16-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Response to Amendment***

1. The present Office action is made in response to the amendment (Paper No. 14) of 10/24/2002.

### ***Specification***

2. The substitute specification filed on 10/24/2002 has not been entered because it does not conform to 37 CFR 1.125(b). In particular, the substitute specification filed on 10/24/2002 appears as a marked-up copy of the original specification with the deletion and additions. Further, applicant has failed to declare that the substitute specification does not contain any new matter as required by the MPEP.

### ***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 1-4, 8-10, and 16-20 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

a) Claim 1 is rejected under 35 USC 112, first paragraph because the specification fails to provide sufficient information/description for the arrangement as well as the optical features of the plurality of components disposed in the illuminated light path and/or detecting light path for the purpose of reducing the

longitudinal chromatic aberrations of the two objectives with respect to “the optical axis...microscope” (claim 1, lines 13-15). In other words, while the specification at pages 11-12 states that the objectives are corrected and the optical properties of the optical components located in the illuminating path are arranged and incorporated together for the purpose of reducing the mentioned aberrations; however, the specification fails to provide sufficient information/teachings to enable one skill in the art to make the invention without undue experimentation.

b) The remaining claims are dependent upon the rejected base claim and thus inherit the deficiencies thereof.

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 1-4, 8-10 and 16-20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

a) Claim 1 is rejected under 35 USC 112, second paragraph for the following reasons: First, the feature thereof “two microscope objectives...third planes” (lines 5-6) is indefinite for the following reasons: a) It is unclear about the arrangement of the two objectives along an optical axis. The mentioned feature can be understood as the objective section having two objective elements which are arranged along the optical axis; and b) it is unclear how the two objectives can define three separate planes as recited. Applicant should note that the lens

couldn't define a plane. The light passing through the lens defines an (image) plane, not the lens itself. In other words, a light is focused by a lens into the focal plane of the lens. If the light having more than one wavelengths then the light will be focused by the lens into different focal planes due to the difference in wavelengths; second, the feature thereof "therefore reducing...the microscope" (lines 12-15) is indefinite due to the grammatical problems. In other words, what does applicant want to define/recite in the mentioned feature? Third, each of the features "the order of magnitude" (line 14); and "the theoretically achievable resolution capability" (line 14) lacks a proper antecedent basis; and fourth, the feature thereof "at least...the order of magnitude of the theoretically achievable resolution capability of the microscope" (lines 13-15) is indefinite. What is "the theoretically achievable resolution capability" does applicant imply here? What is the range does applicant imply from the condition thereof "at least of the order of magnitude of the theoretically achievable resolution capability"?

b) Claim 4 is functional. The claim recites functional language thereof " a beam splitter... one another" (lines 1-5) without reciting sufficient structure to warrant the presence of functional language. In other words, it is unclear how a beam-splitter of an interferometer for splitting an incident light beam into two individual beam paths can make the so-called "accumulated aberrations of the interferometer" opposite to one another.

Art Unit: 2872

The claim is also indefinite because the feature thereof "the accumulated aberrations of the of the interferometer" (lines 4-5) is indefinite. Further, the terms "of the of the" (lines 4-5) should be changed to --of the--.

c) Claim 10 is indefinite because it is unclear about the structure defined by "a dichroic beam...beam path" (line 2).

d) The remaining claims are dependent upon the rejected base claims and thus inherit the deficiencies thereof.

***Claim Rejections - 35 USC § 102***

7. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

8. Claims 1-3, 8-9 and 20, as best as understood, are rejected under 35 U.S.C. 102(b) as being anticipated by Picard (U.S. Patent No. 4,965,441, of record).

Picard discloses a scanning microscope having a light source for providing a laser beam of different wavelengths (see column 5, lines 10-15), a detecting system having a detecting pinhole; a set of lens elements for focusing light of three different wavelengths into the three different planes. See the embodiment as described in columns 6-7 and shown in figure 7.

With regard to the feature relating to the two objectives recited in claim 1, such a feature is readable from the art of Picard because the lens elements (54 and 56) act as objectives for focusing light of different wavelengths. The claim has never recited that the two objectives are arranged in opposite/symmetric manner with respect to a sample/specimen.

Art Unit: 2872

With regard to the result of reduction in longitudinal aberrations as recited on last three lines of the claim 1, such a feature is also readable from the arrangement of the lenses and the beam splitter provided by Picard because the claim does not provide specific limitations of the arrangement of the optical elements to make the device claimed distinguish from the art of Picard.

***Claim Rejections - 35 USC § 103***

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 1-3, 8-9 and 19-20, as best as understood, are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Hell (EP No. 491 289) in view of Picard (U.S. Patent No. 4,965,441) (both of record).

In columns 9-11 and fig. 3, Hell discloses a double confocal scanning microscope having an illuminating system defining an illuminating beam path from the illuminating system to a specimen, and a detecting system defining a detection beam path. There are two objectives disposed equally on both sides of a specimen wherein the light passing through one objective will focus into the specimen. At least one beam-splitter is used for splitting an incident light beam into two individual beam paths. It is also noted that there are other optical components including polarizations elements, mirrors, lenses disposed in the

illuminating light path and detecting light path. The detecting system comprises a detection pinhole which is symmetrically positioned in the detecting beam path. While Hell does not clearly state that the optical components used in his system is corrected for errors/aberrations; however, since any optical components process at least one type/kind of error/aberration correction, and the claims do not recite any specific aberrations as well as error/aberration correction; therefore, the optical components disclosed in the double scanning microscope of Hell inherently process such characteristics. The only feature missing from the art of Hell is that he does not clearly state that the illumination system provide light of different wavelengths and those different wavelengths will be focused in different planes; however, a laser is understood as a light containing different wavelengths and the different wavelengths will be focused into different planes by the same lens element. In such a knowledge then the system provided by hell meets all the features recited in the claims. If it is not inherent then the use of an illumination system having a laser of different wavelengths is known to one skilled in the art. The support for that conclusion is found in the scanning microscope provided by Picard in which he discloses the use of a laser of different wavelengths in a scanning microscope and the light of different wavelengths will be focused in different planes. With regard to the value of the wavelengths used in the system, such wavelengths are well known as the wavelengths to be used in the microscope for illuminating an object. Thus, it would have is known to one skilled in the art at the time the invention was made



to modify the system provided by Hell by utilizing the illuminating system having a laser of different wavelengths as suggested by Picard for the purpose of illuminating an object with different levels or an object of an irregular surface.

11. Claims 1-4, 8-9 and 19-20, as best as understood, are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Schoppe (DE 39 18 412) in view of Picard (U.S. Patent No. 4,965,441) (both of record).

In columns 1-3 and fig. 1, Schoppe discloses a double confocal scanning microscope having an illuminating system defining an illuminating beam path from the illuminating system to a specimen, and a detecting system defining a detection beam path. There are two objectives disposed equally on both sides of a specimen wherein the light passing through one objective will focus into the specimen. A beam-splitter is used for splitting an incident light beam into two individual beam paths. It is also noted that there are other optical components including polarizations elements disposed in the illuminating light path and detecting light path. The detecting system comprises a detection pinhole which is symmetrically positioned in the detecting beam path. While Schoppe does not clearly state that the optical components used in his system is corrected for errors/aberrations; however, since any optical components process at least one type/kind of error/aberration correction, and the claims do not recite any specific aberrations as well as error/aberration correction; therefore, the optical components disclosed in the double scanning microscope of Schoppe inherently

process such characteristics. It is also noted that since the optical path lengths from the beam-splitter to the specimen in each individual illuminating beam path are equal to each other; therefore, the aberrations are inherently made opposite to each other.

The only feature missing from the art of Schoppe is that he does not clearly state that the illumination system provide light of different wavelengths and those different wavelengths will be focused in different planes; however, a laser is understood as a light containing different wavelengths and the different wavelengths will be focused into different planes by the same lens element. In such a knowledge then the system provided by hell meets all the features recited in the claims. If it is not inherent then the use of an illumination system having a laser of different wavelengths is known to one skilled in the art. The support for that conclusion is found in the scanning microscope provided by Picard in which he discloses the use of a laser of different wavelengths in a scanning microscope and the light of different wavelengths will be focused in different planes. With regard to the value of the wavelengths used in the system, such wavelengths are well known as the wavelengths to be used in the microscope for illuminating an object. Thus, it would have is known to one skilled in the art at the time the invention was made to modify the system provided by Schoppe by utilizing the illuminating system having a laser of different wavelengths as suggested by Picard for the purpose of illuminating an object with different levels or an object of an irregular surface.

***R s p o n s   t o   A r g u m e n t s***

12. Applicant's arguments with respect to claims have been considered but are moot in view of the new ground(s) of rejection.

***C o n c l u s i o n***

13. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

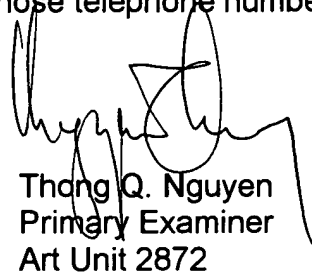
A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thong Q. Nguyen whose telephone number is 703 308 4814. The examiner can normally be reached on M-F.

The fax phone numbers for the organization where this application or proceeding is assigned are 703 308 7724 for regular communications and 703 308 7724 for After Final communications.

Art Unit: 2872

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703 308 0956.



Thong Q. Nguyen  
Primary Examiner  
Art Unit 2872

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January 23, 2003